INNOVATIONS IN INSURING THE POOR

Providing Weather Index and Indemnity Insurance in Ethiopia

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Agriculture in Ethiopia is almost entirely rainfed and highly prone to droughts and floods. Given that 85 percent of the population depends on smallholder agriculture, these weather shocks severely affect many Ethiopians. The high covariance of climatic risks, coupled with the lack of property to be attached as collateral, makes it difficult for cooperatives, microfinance organizations, or banks to provide financial services to smallholder farmers unless they have some insurance/reinsurance against this weather risk. These conditions in turn keep farming at a subsistence level, with low use of improved technology, low productivity, and low risk.

Nyala Insurance S.C. is one of the leading private insurance companies in Ethiopia and provides a range of products, including both life insurance and general insurance. To help farmers protect themselves against droughts that significantly reduce crop yields, Nyala recently introduced crop insurance products (see Box 1 for details about Nyala Insurance S.C.).

Different products for different farmers

In recent years Nyala has provided two types of crop insurance: multiple-peril crop insurance (MPCI) and index-based weather insurance, each designed to meet the needs of different farmers.

Nyala's MPCI is a double-trigger scheme that insures farmers against a number of different shocks—both natural and human caused—that affect crop yields, including shortages of rainfall, excess rainfall, fire, and transit risks. Because MPCI insures against a number of perils, it is better suited to farmers who face a number of sources of risk to crop yields than it is to farmers whose predominant source of risk is rainfall variability. Nyala thus targets this product to farmers located in areas with reasonable rainfall. The product uses an innovative double-trigger design to determine when payouts need to be made against insured perils, mainly weather. The first trigger is the recording of unusual rainfall levels at a local weather station. When this happens, Nyala sends a team to assess the yields (through crop cutting) of model farmers who have been preselected as a benchmark based on criteria agreed upon by agricultural experts from Nyala, the Ministry of Agriculture, cooperative unions, and the insured farmers. This assessment is the second trigger. Based on this assessment result, a payout is made to all farmers who suffered a shortfall from the pre-agreed-upon long-term average yield. Losses from localized risks such as fire and hail are more costly to assess because they involve individual visits at the farm level. Because this product involves farm-level assessments for some risks, it is costly to administer and more suitable for those with larger farms than for smallholders. It therefore tends to be purchased by farmers who are involved in seed multiplication.

In 2008 and 2009, 947 pilot farmers in two cooperative unions (Lume-Adama and Yerer) spanning four *woredas* (districts) were insured for teff, wheat, lentil, haricot beans, and chickpeas under MPCI contracts. Total membership in these unions is 47,000.

Nyala's index-based drought insurance product, on the other hand, is more suitable for smallholder farmers in more drought-prone areas. Index-based insurance products have been introduced in recent years as a way to avoid some of the drawbacks of traditional insurance mechanisms. Rather than paying out as an indemnity when a crop fails—an approach that requires detailed data on an individual farmer's productivity as well as ex post verification of losses—an index-based insurance product simply uses a measure such as rainfall, temperature, or soil moisture to insure against drought or other covariant shocks. This approach reduces transaction costs, making insurance more affordable and accessible for smallholder farmers. The conditions represented in the index may not, however, reflect the farmers' actual crop loss. To keep this remaining risk, known as basis risk, as low as possible, it is important that farmers are located near weather stations—no farther than 20 kilometers, depending on terrain in the area.

The weather index product is designed around particular crops. For each crop, the main growing season is split into three phases: an initial phase corresponding to the germination and vegetative phase, a middle phase corresponding to flowering, and a final phase corresponding to seed formation and ripening. These phases are further split into 10-day periods (*dekads*). The amount of rainfall needed and expected in each *dekad* is estimated. If the rainfall

Box 1—About Nyala Insurance S.C.

When all former private insurance companies in Ethiopia were nationalized by the socialist regime that prevailed from 1974 to 1993, they were taken over by the government-owned insurance corporation. Following the change to a market-led economy in 1994, many private business institutions, including banks and insurance companies, were established. Nyala was the seventh to be licensed in July 1995. Nyala Insurance S.C., or NISCO, was established with 7 million Ethiopian birr in paid-up capital and 25 million birr in authorized capital. Nyala has raised its capital to 35 million birr in paid-up capital and 50 million birr in authorized capital, with an asset value of more than 166,800,000 birr. Nyala operates from more than 30 service centers located in all regions throughout the country.

Nyala's vision is to guarantee care and protection to all its customers and to deliver these faithfully and responsibly. Its mission is to continuously interact with and recognize clients' point of view; to ensure that clients fully understand the terms and conditions of protection policies before commitment; to ensure that Nyala's own staff always follow the company's business principles and practices; and to implement a state-of-the art information system so that customer services are enhanced through the provision of timely and accurate information. Nyala believes that the foundation of its success is the satisfaction of those it serves nationwide.

is less than this amount, the number of millimeters of deficit is counted and recorded. The total amount of deficit rainfall is then added up, and a payout is made, up to the pre-agreed limit, on the basis of how many millimeters of deficit are recorded. The larger the deficit, the larger the payout (within the pre-agreed limit).

Nyala introduced weather index-based insurance in 2009 specifically to protect smallholder farmers against weather risk. The index-based insurance product was piloted with farmers in the eastern Ethiopian *woreda* of Boset, chosen because of the vulnerability of yields there to drought, the availability of nearby weather stations, and the willingness of cooperatives in the area to purchase the new product (the cooperative union had previously purchased crop insurance from Nyala). The insurance was targeted to smallholder farmers (most with holdings of less than 0.5 hectare) who grow haricot beans, teff, and other cereals. A weather index product was designed in collaboration with the World Food Programme around the rainfall requirements of haricot beans. This product was purchased by 137 haricot bean farmers in the Lume-Adama Farmers' Cooperative Union (LAFCU), an organization of 22,000 members located in three *woredas*. Similarly, 200 teff farmers in the Kola Tenben *woreda* in northern Ethiopia were insured with a weather index product that was designed around the rainfall requirements of teff. This product was provided in cooperation with Oxfam-America, mainly using satellite data. Nyala has reinsured these products through Swiss Re.

The product has potential for areas where drought is the major risk to crop yields and where it is easy to define a good year and a bad year. It is difficult to price and reinsure unless the index relies on a nearby weather station that has consistently recorded rainfall for decades.

Using cooperatives to reach many farmers

In both the MPCI and weather index insurance contracts, Nyala has found that farmers' unions serve as effective delivery channels for the weather insurance products. By working with cooperative unions, Nyala insures all farmers who belong to the cooperative under the same contract. The cooperative is responsible for both paying the premium and distributing potential payouts (as calculated by Nyala) to each insured farmer, reducing transaction costs for Nyala. Working with cooperatives is an important means of achieving the scale required for insurance products.

Because many of these cooperatives already provide financial services and technical assistance, they are well positioned to support the provision of insurance coverage to their farmers. For example, in the case of the haricot bean pilot, all farmers were members of LAFCU. The union was already providing agricultural inputs and allowing farmers to purchase them on credit, given that most farmers have little or no savings to buy agricultural inputs up front. In the pilot project, LAFCU, the Yerer Farmers' Cooperative, and Dedebit Microfinance served as effective intermediaries for Nyala while also insuring their members' input credit against weather risk. Nyala is continuing to consider ways to provide insurance, taking into account farmers' limited capacity to pay for insurance up front.

Investing in infrastructure

The lack of infrastructure necessary to create the weather indexes makes it difficult to scale up index insurance. Currently, the National Meteorological Agency collects weather data from around 900 weather stations across the country, but only about 140 stations have the many years of historic records required to price index insurance.

In addition, the design of the index-based insurance product depends on a fast and transparent data collection process, but in Ethiopia data collection from existing stations is slow and may be subject to errors. At most weather stations, data are collected manually on a daily basis, recorded on paper, and sent once a month by mail to regional offices and to the central office in Addis Ababa, where they are checked for inconsistencies and entered into a computer.

In the case of the Boset weather index insurance pilot, weather stations in Boset and Sodere provided information on historic rainfall, but the World Food Programme invested in an automated weather station, at a cost of around US$3,000, to collect data during the insurance contract. This step allowed rainfall data to be collected quickly and reliably, thereby facilitating prompt settlement of the insurance contract.

Summary

Nyala insurance has experienced considerable success in designing innovative weather insurance products that protect a range of farmers. Public investments in institutions such as cooperatives that can retail these products to farmers and automated weather station infrastructure can help scale up these products. ■

For further reading: See more information on Nyala at www.nyalainsurance.com.

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